

<b>SAFETY SIGNS, TAGS, BARRIERS, AND COLOR CODING</b>	<b>Manual Document Page Issue Date</b>	<b>RPP-27195 ESHQ TFC-ESHQ-S-STD-18, REV B-2 1 of 10 May 5, 2010</b>
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## 1.0 PURPOSE AND SCOPE

This standard provides: (1) an effective means of communicating information concerning safety hazards to observers so that risk of injuries resulting from these hazards can be avoided; and (2) a means of uniformly applying safety-related signs, tags, and temporary barriers for demarcating hazards.

This standard establishes requirements for a uniform visual system of identification concerning hazards in the work environment. It provides for the design, application, and use of signs, tags, and temporary barriers by all WRPS employees and subcontractors.

This standard does not apply to radiological postings which are covered under [TFC-ESHQ-RP MON-C-18](#) or posting (signs, tags, labels, barricades, etc.) defined in Hanford site-wide safety standards.

## 2.0 IMPLEMENTATION

This standard is effective on the date shown in the header.

## 3.0 STANDARD

### 3.1 General

(5.1.1.a, 5.1.1.b, 5.1.1.c, 5.1.2.a, 5.1.2.b)

Verify that:

- Safety signs and barriers are a supplement to, and **NOT** a substitute for, engineering and administrative controls when mitigating hazards
- Safety signs and barriers are strategically and prominently placed to alert and inform a viewer in sufficient time so that the viewer can take appropriate evasive action to avoid potential harm from the demarcated hazard.
- Safety signs and barriers are placed in a manner so that they are legible, non-distracting, and non-hazardous in themselves
- Safety signs and barriers are displayed with illumination or retro-reflectorization to ensure legibility under normal working conditions; when illumination is inadequate, supplemental illumination shall be provided to ensure that safety signs are legible and the color-coding is not distorted
- Safety signs and barriers are promptly removed or covered when a hazard no longer exists

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- Accident prevention tags are used only as a temporary means of notifying employees of an existing hazard, such as defective tools, equipment, etc. (Attachment A)

NOTE: Accident prevention tags with the message “Danger – Do Not Operate” or candy striped tags with the message “Danger” are used **only** for Lock and tag as a standard part of the hazardous energy control program. (See DOE-0336.)

- Accident prevention tags contain a signal word and a major message. The signal word must be legible at a minimum distance of five feet.
- Accident Prevention Tags say “ Danger - Unsafe – Do Not Use” and will be dated and signed by the safety professional noting the issue and will carry on the back a description of the problem or issue that has made the equipment or tool unsafe. The safety professional will write a PER to document the deficiency.
- Accident prevention tags are not to be used as a substitute for accident prevention signs
- Accident prevention tags are affixed as close as safely possible to the respective hazards by a positive means, such as string, wire, or adhesive, that prevents loss or unintentional removal
- Accident prevention tags are promptly removed when a hazard no longer exists. The tag is removed by the person who installed the tag or their delegate.

### 3.2 Employee Responsibilities

Employees (including managers and supervisors) shall observe all warning signs and shall not enter barricaded areas unless authorized to do so.

### 3.3 Supervisor/Manager Responsibilities

(5.1.1.a, 5.1.1.b, 5.1.1.c, 5.1.2.a, 5.1.2.b)

Supervisors and managers shall ensure safety hazards are demarcated in a uniform and consistent manner and the design, application, and use of signs, tags, and barriers comply with applicable OSHA and ANSI standards.

### 3.4 Sign, Tag, and Barricade Design and Format

(5.1.1.a, 5.1.1.b, 5.1.1.c, 5.1.2.a, 5.1.2.b)

Supervisors and managers verify the following.

- Safety signs, tags, and barriers are constructed in the proper format and color coding for the identification of hazards, the location of safety equipment, protective equipment, structures, and facilities. Attachments B and Attachment C provide an overview of the proper formatting and color coding of safety signs, accident prevention tags, and barriers. For greater detail, reference ANSI Z535.1, ANSI Z535.2, and ANSI Z535.3.
- Safety signs and barriers are strategically and prominently placed to alert and inform a viewer in sufficient time so that the viewer can take appropriate evasive action to avoid

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potential harm from the demarcated hazard. Attachment D provides posting requirements.

- Barriers that will be in place for longer than 24 hours will be logged into the shift office.
- Safety signs, tags, and barriers are designed to withstand the environment in which they are placed.
- Rigid safety signs are furnished with rounded or blunt corners and shall be free from sharp edges, burrs, splinters, or other sharp projections. The ends or heads of bolts, screws, or other fastening devices shall be located in such a way that they do not constitute a hazard.

### **3.5 Typical Barricade Tape**

#### **3.5.1 Yellow/Black Barricade Tape**

This type of barricade tape serves as a caution to indicate to employees of a potential hazard. Employees may enter without permission from erector of this tape. This barricade tape is primarily used for the following:

- Excavation less than 1.2 meters (4 feet) in depth
- Identification of tripping hazards and low hanging objects
- Material storage on the site.

#### **3.5.2 Red Barricade Tape**

This type of barricade tape indicates DANGER and that a potential serious hazard may be present. No employee, other than the craft assigned to work inside a RED barricade, may enter without first obtaining permission from the erector of the tape. This barricade tape is used for, but is not limited to, the following:

- Overhead work
- Live electrical components
- Scaffold under construction
- Around swing radius of equipment with a rotating superstructure.

#### **3.5.3 Magenta (Purple) Yellow Tape**

This type of barricade tape is used to indicate DANGER—RADIATION and that possible exposure may be present. This barricade tape is considered to be as an equal to red in that no employees are allowed to enter this area without first obtaining permission from the erector of the tape. This color is representative of x-ray work being performed.

### 3.6 Pre-Job Preparation

Supervisors and managers:

1. Determine the safety hazards that are associated with or created by the planned work activities, e.g., open trenches, uneven walking surfaces, potential flying chips, parts, sparks.
2. Contact the sign shop and request the proper safety signs to demarcate the identified safety hazards.
3. Ensure signage is located at the area tool cribs for back shift access.

### 3.7 While Working

Supervisors and managers:

1. Establish appropriate barricades and signage around identified safety hazards or work activities requiring personal protective equipment.
2. Place signage on all barricades that identify the hazards.
3. Reassess the work area and, if necessary, obtain and post additional signs and/or establish additional barricades when conditions change or new safety hazards are identified.
4. Prevent unauthorized personnel from entering barricaded areas.
5. Ensure that signs and barricades are promptly removed or covered when a hazard no longer exists.
6. Ensure construction areas are barricaded and posted "Construction Area," with a physical boundary (such as rope or fencing, where practical) to control access and warn of potential hazards.

NOTE: It is recommended that "hurricane" fencing be used for barricading outdoor areas.

7. Cover floor openings and label them "Hole Covering-Do Not Remove;" secure floor openings to prevent movement.
8. Ensure any bridging has load limit markings posted.

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## 4.0 DEFINITIONS

Message panel. The area of a safety sign containing words related to identification of the hazard, how to avoid the hazard, and/or the probable consequences of not avoiding the hazard.

Panel. The area of safety signs having a distinctive background color different from adjacent areas of the sign or which is clearly delineated by a line or margin. There may be up to three panels per sign: signal word, message, and symbol/pictorial.

Signal word panel. The area of a safety sign containing the signal word. For personal injury hazards, the signal word panel may also contain a safety alert symbol.

Symbol/pictorial panel. The area of a safety sign containing a symbol or pictorial.

## 5.0 SOURCES

### 5.1 Requirements

1. 29 CFR 1910, "Occupational Safety and Health Administration, Department of Labor."
  - a. Subpart J, "General Environmental Controls."
  - b. 29 CFR 1910.144, "Safety Color Code for Marking Physical Hazards."
  - c. 29 CFR 1910.145, "Specifications for Accident Prevention Signs and Tags."
2. 29 CFR 1926, "Safety and Health Regulations."
  - a. Subpart G, "Signs, Signals, and Barricades."
  - b. 29 CFR 1926.200, "Accident Prevention Signs and Tags."

### 5.2 References

1. American National Standard Z535.1-1998 Safety Color Code. Revision of: American National Standard, Z53.1-1979.
2. American National Standard Z535.2-1998 Environmental and Facility Safety Signs. Revision and Combination of: American National Standard, Z35.1-1972 and American National Standard, Z35.4-1972 .
3. American National Standard Z535.5-1998 Accident Prevention Tags (for Temporary hazards). Revision of: American National Standard, Z35.2-1974.
4. DOE-0336, "Hanford Site Lockout/Tagout."

ATTACHMENT A – ACCIDENT PREVENTION TAGS



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## ATTACHMENT B - SAFETY SIGNS, SIGNAL WORDS, AND FORMAT

There are seven types of safety signs: **DANGER, WARNING, CAUTION, NOTICE**, general safety, fire safety, and directional arrows. The first five types of safety signs use a signal word or words to designate a degree or level of safety alerting. Fire safety and directional arrows do not use signal words. The signal word or words should always be located in a distinctive panel located in the uppermost portion of the safety sign.

**DANGER:** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. The DANGER signal word is appropriate for signs in the area of, or inside of, enclosures containing a Danger-level hazard. This signal word should never be used for property-damage hazards.

The proper format for the “Danger” signal word is white letters on a safety red oval with a white outline on a black rectangle. The message panel shall use either black or red letters on a white background or white letters on a black background.

**WARNING:** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. The WARNING signal word is appropriate for signs placed outside of the area of, or on the exterior of, the enclosures containing, a Danger-level hazard. This signal word should never be used for property-damage hazards.

The proper format for the “Warning” signal word is black letters on a safety orange diamond on a black rectangle. The message panel shall use either black letters on a white background, white letters on a black background, or black letters on a safety orange background.

**CAUTION:** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or to alert against unsafe practices that may cause property damage.

The proper format for the “Caution” signal word is safety yellow letters on a black background. The format for a property damage “Warning” signal word is black letters on a safety yellow background. The message panel shall use either black letters on a white background, white letters on a black background, or black letters on a safety yellow background.

**NOTICE:** Indicates a statement of company policy directly or indirectly related to the safety of personnel or protection of property. This signal word should not be associated with a hazard or hazardous situation and shall not be used in place of “DANGER,” “WARNING,” or “CAUTION.”

The proper format for the “notice” signal word is white italic letters on a safety blue background. The message panel shall use either safety blue letters or black letters on a white background.

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## ATTACHMENT B - SAFETY SIGNS, SIGNAL WORDS, AND FORMAT (cont.)

**General safety:** Signs used to indicate general instructions relative to safe work practices, remind of proper safety procedures, and indicate the location of safety equipment, i.e., “SAFETY FIRST,” “BE CAREFUL,” “THINK.”

The proper format for general safety signs is: (1) signal word panel - white letters on a safety green background on a rectangular field appearing in the upper most portion of the sign and (2) message panel shall be safety green or black letters on a white background.

**Fire safety:** Signs used to indicate the location of emergency fire fighting equipment. These signs may show the location of, but not the direction to, firefighting equipment. Fire safety signs do not have a signal word. The message panel shall be safety red letters on a white background in either a square or rectangular field.

**Directional arrow signs:** Signs used to indicate the direction of emergency equipment, safety equipment, and other locations important to safety. The directional arrow symbol shall be in white on a black or colored background on a rectangular field. The position of the arrow symbol will appear either: (1) in the upper most portion of general or fire safety signs, or (2) in the lower panel of DANGER, WARNING, CAUTION, or NOTICE signs.



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## **ATTACHMENT C - COLOR CODING**

Use the following colors or color combinations for safety coding on all signs, tags, barriers, and other markings meant to visually convey hazard information.

**SAFETY RED** shall be the color for the identification of **DANGER** and **STOP**. Common applications for the color safety red are: the background color of the signal word panel for **DANGER** signs/tags, fire protection equipment and apparatus, flammable liquid containers, **STOP** bars, and **STOP** buttons or emergency shut-off controls.

**SAFETY ORANGE** shall be the color used to identify intermediate-level hazards (e.g., **WARNING**) and hazardous parts of machines. Common applications are the background color of the signal word panel for **WARNING** signs, labels, and tags, and marking parts of equipment that may cut, crush, or otherwise injure.

**SAFETY YELLOW** shall be the color for the identification of **CAUTION**. Solid yellow, yellow and black stripes, or yellow and black checkers are all acceptable color coding schemes to ensure maximum contrast with different colored backgrounds. Common applications are the background color of the signal word panel for **CAUTION** safety signs, labels, and tags, marking physical hazards, and tape, rope, and barricades used to establish safety boundaries.

**SAFETY GREEN** shall be the color for emergency egress and the location of first aid and safety equipment. Common applications are the background color of the signal word panel for general safety signs, demarcating the location of first aid stations, and marking safety showers.

**SAFETY BLUE** shall be the color for the identification of safety information used on informational signs and bulletin boards. Common applications are the background color for the signal word panel for **NOTICE** and informational safety signs and mandatory action signs for wearing personal protective gear such as hard hats.

**FLUORESCENT ORANGE OR ORANGE RED** shall be the color used to signify the actual or potential presence of biological hazards and to identify equipment, containers, rooms, materials, or combinations thereof, which contain, or are contaminated with, viable biological agents. Biological hazards, or biohazards, are microorganisms that are known to cause disease in healthy humans.

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## **ATTACHMENT D – POSTING REQUIREMENTS**

1. Individuals may be substituted for normal posting signs if the posting is for less than eight consecutive hours. Individuals must be knowledgeable of requirements, provide continuous observation and control, and be empowered to implement control over access. This method may be appropriate for hoisting and rigging activities where it is not feasible to barricade the swing radius of the crane or when the use of a rope or chain would increase the hazards.
2. Use stanchions, cattle guards, or crowd barriers for all areas set up within tank farm boundary fences or for temporary area boundaries established outside tank farm boundary fences. Ensure that they are weighted if necessary to prevent instability in windy conditions.
3. When choosing a type of barrier for posting, such as rope, chain, or barricade tape, erect in a secure manner that will maintain a reasonable height generally above 12 inches from the floor or ground surface.
4. Post area signs so they are visible from all directions and at various elevations when installed on rope/chain barriers and on fences or walls less than two meters (six feet) in height. These signs should be visible from normal avenues of approach.
5. Signs must be placed so that they are legible, do not create a distraction, and are not a hazard themselves.
6. Do not place signs on movable objects or adjacent to movable objects (doors, window, etc.) that may obscure the sign. Doors may be posted where necessary providing that the posting is not obstructed when the door is open. Gates may be posted providing that the sign is not obstructed when the gate is open. If it is necessary to leave a gate open install a chain or barrier with appropriate posting or post a guard at the entrance.

NOTE: When posting doorways, the effect of door position upon the visibility of the signs and other changes in configuration must be considered.

Where practical place signs approximately every 40 feet. In fenced areas signs/postings are only required at access points. Additional and more prescriptive requirements may be found in specific OSHA standards.